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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/060,621	01/30/2002	Alain Chapuis	HPB-22	8229

7590 03/26/2003

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EXAMINER

THOMPSON, GREGORY D

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 03/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.  
10/060,621

Applicant(s)  
Alain et al

Examiner  
Gregory Thompson

Art Unit  
2835



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 183).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Jan 30, 2002
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-21 is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-17, and 22 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☒ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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1. Claims 1, 4, 12, 17, 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 7-8 language of "on the component side is formed" is not understood.

Same 112 problem present in claim 12, lines 6-7 and claim 17, lines 6-7.

Claim 12, line 13 not clear what is meant by the language of "realizes".

Line 18 language of "in its assembled state" is not clearly understood. Lines 19-24 are confusing for it is not clear how at least one indentation accommodates the components.

Claim 4, line 5 language of "a component side surface" confusing with language of "the component side" in claim 1.

Claim 22, line 4, language of "realizes" not understood. Line 7, language of "in its assembled state" is not understood. Lines 7-13 confusing for it is not clear how at least one indentation accommodates the components.

Above are just examples of 112 problems found with some of the claims. All claims should be reviewed for 112 problem and corrected.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-10, 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vinciarelli et al discloses a DC-DC converter with a multilayered PCB 17 with an opening therein to receive a core element of planes inductor 21. The component side or area would be where components 17 are mounted in Figs. 9-10 and the output side or area would be where part of bridge element (5) 29 are mounted in Fig. 5B by the top solder 55 attaching 29 to trace 53.

The cross section of bridge element 29 is not taught or suggested in the reference. However, 2a is constructed out of copper and a very large cross-section as seen in Figs. 2A, 5B for large current carrying capacity. Therefore, considered obvious that the cross-section of element 29 could obviously be greater than  $1.5 \text{ mm}^2$ ,  $2 \text{ mm}^2$  to provide <sup>larger</sup> ~~layer~~ current carrying capacity for output currents of 60, 80 amperes for a DC-DC converter in supplying power to electrical devices.

The reference does not teach or suggest the materials in claim 3. However, to construct the copper element 29 out of the known materials in claim 3 for superior carrying capacity is considered obvious.

Regarding claim 4, elements 29a and 17a are the obvious full equivalent to the structure of claim 4 to attached 29 to carrier 17.

Regarding claim 5 the segment would be 29d which could be picked up by a placement machine.

The cooling element is 15 and the potting compound would be 50. Compound 50 is not taught as heat conductive. However, compound 50 obviously could be the known silicon based

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heat conductive compound as known in the art to aid in further heat enhancement to cooling element 15.

3. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevens.

The carrier element is 210, inductor received in an opening in the carrier is 233, 236, the plate shaped cooling element is 240 with at least one trough shaped indentation (area defined by the walls of case 240) that receives the shape of components 260, and the heat conducting potting compound is 270.

The carrier 210 is not layered. However, considered obvious that carrier could be layered to provide a complex electrical interconnected system.

The cooling element 240 is not aluminum. However, considered obvious that 240 could be constructed out of the well known material of aluminum to provide excellent heat enhancement.

The compound is not silicon based. However, considered obvious to use the well known silicon based compound for compound 270 to provide excellent heat enhancement.

4. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Claims 17 and 22 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

6. Claims 18-21 are allowed.

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7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Schultz, Linden et al, Arai et al show a large conductor for a current carrying.

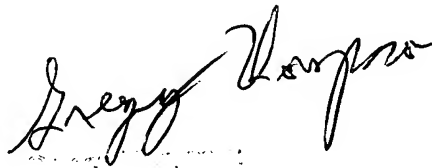
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Thompson whose telephone number is 308-2249. The examiner can normally be reached on Mon-Thurs from 6:00 Am to 4:30Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg, can be reached on (703) 308-4215. The fax phone number for the organization where this application or proceeding is assigned is 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.

Thompson/ek

03/19/03

A handwritten signature in black ink, appearing to read "Greg Thompson". The signature is written in a cursive, flowing style. Below the signature, there is a faint, rectangular stamp or box, but its contents are illegible.